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Maternal Exposure to Occupational Solvents and Childhood Leukemia

Claire Infante-Rivard[1]

Jack Siemiatycki[2]

Ramzan Lakhani[3]

Louise Nadon[3]

[1] Department of Epidemiology, Biostatistics and Occupational Health, Faculty of Medicine, McGill University, Montréal, Québec, Canada

[2] Département de Médecine sociale et préventive, Université de Montréal, Montréal, Québec, Canada

[3] INRS-Institut Armand-Frappier, Laval, Québec, Canada

Address for correspondence: Claire Infante-Rivard MD, PhD, James McGill Professor, Department of Epidemiology, Biostatistics, and Occupational Health, Faculty of Medicine, McGill University, 1130 Pine Avenue West, Montréal, Québec, Canada, H3A 1A3. Telephone: 514-398-4231; FAX: 514-398-7435; claire.infante-rivard@mcgill.ca

Running head: solvents and childhood leukemia

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Abbreviations:

ALL: acute lymphoblastic leukemia

CI: confidence interval

OR: odds ratio

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ABSTRACT

Many organic solvents are considered probable carcinogens. A population-based case-control study was carried out, including 790 incident cases of childhood acute lymphoblastic leukemia and as many healthy controls, matched on age and sex. Maternal occupational exposure to solvents before and during pregnancy was estimated using the expert method, which involves chemists coding each individual s jobs for specific contaminants. Home exposure to solvents was also evaluated. The frequency of exposure to specific agents or mixtures was generally low. Results were generally similar for the period ranging from two years before pregnancy up to birth and for the pregnancy period alone. For the former period, the odds ratio (OR), adjusted for maternal age and sex, for any exposure to all solvents together, was 1.11 (95% confidence interval (CI): 0.88-1.40). Increased risks were observed for specific exposures such as to 1,1,1-trichloroethane (OR)=7.55, 95% CI: 0.92, 61.97), toluene (OR=1.88, 95% CI: 1.01, 3.47), and mineral spirits (OR=1.82, 95% CI: 1.05, 3.14). There were stronger indications of moderately increased risks associated with exposure to alkanes (C5-C17) (OR=1.78, 95% CI: 1.11, 2.86) and mononuclear aromatic hydrocarbons (OR=1.64, 95% CI: 1.12, 2.41). Risk did not increase with increasing exposure, except for alkanes, where a significant trend (p=0.04) was observed. Home exposure was not associated with increased risk. Using an elaborate exposure coding method, this study shows that maternal exposure to solvents in the workplace does not seem to play a major role in childhood leukemia.